

CubeSat Handling of Multisystem Precision Time Transfer (CHOMPTT)

Completed Technology Project (2015 - 2020)



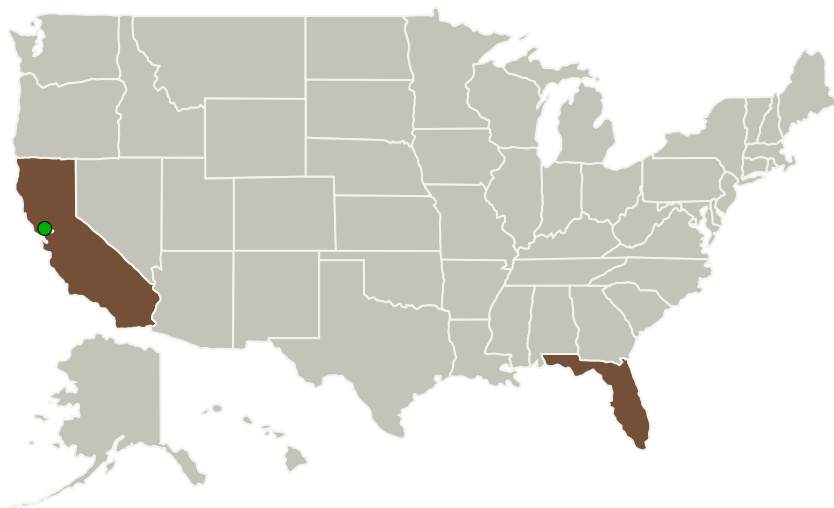
Project Introduction

The CubeSat Handling of Multisystem Precision Time Transfer (CHOMPTT) mission is a precision timing satellite equipped with atomic clocks synchronized with a ground clock via laser pulse. The 1U instrument contains a pair of chip-scale atomic clocks, picosecond event timers, and avalanche photo-detectors that will be integrated into a 3U CubeSat bus.

Anticipated Benefits

Clock synchronization between ground-to-space and space-to-space terminals is critical for future missions, especially outside GPS coverage. This technology could help enable constellations of nanosatellites to precisely correlate astronomical, heliophysical or Earth observations and to coordinate spacecraft to produce a distributed aperture.

Primary U.S. Work Locations and Key Partners



CubeSat Handling of
Multisystem Precision Time
Transfer

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Organizations Performing Work	Role	Type	Location
University of Florida	Lead Organization	Academia	Gainesville, Florida
Air Force Research Laboratory(AFRL)	Supporting Organization	US Government	Notre Dame, Indiana
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Co-Funding Partners	Type	Location
Exploration Capabilities	NASA Program	

Primary U.S. Work Locations	
California	Florida

Project Transitions

▶ **February 2015:** Project Start

✓ **August 2020:** Closed out

Closeout Summary: Aspects of this technology have been spun off to NASA's CubeSat Laser Infrared Crosslink (CLICK) mission. The CHOMPTT investigator continues to try to further develop the payload into a follow-on CHOMPTT mission.

Closeout Documentation:

- CHOMPTT Final Report(<https://techport.nasa.gov/file/102870>)

Project Website:

https://www.nasa.gov/directorates/spacetech/small_spacecraft/index.html#.Vt

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

University of Florida

Responsible Program:

Small Spacecraft Technology

Project Management

Program Director:

Christopher E Baker

Program Manager:

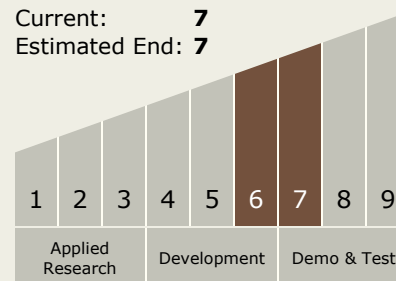
Roger Hunter

Principal Investigator:

John W Conklin

Technology Maturity (TRL)

Start: **6**
Current: **7**
Estimated End: **7**



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Technology Areas

Primary:

- TX17 Guidance, Navigation, and Control (GN&C)

Other/Cross-cutting:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems

Target Destinations

The Sun, Earth, The Moon